C) WORK PLAN AND WORK SCHEDULE

WORK PLAN

The following work plan has been based on the requirements of the RFP, and altered slightly in its sequence to reflect a logical completion of tasks. Some minor additional tasks have been added to enhance the project.

START-UP MEETING

An organization and scoping meeting will be held to:

a. Review project and task objectives
b. Review work plan
c. Collect available data and published materials
d. Establish meeting schedule
e. Establish communication channels with other departments
f. Review and list State and Federal relevant materials
g. Review and list all applicable design and planning standards

Changes to the Work Plan will be made (if necessary) at the conclusion of this effort, and an amended Work Plan and Schedule will be published. A follow-up meeting will be held to further refine the scope, schedule, and other aspects of the study (as needed).

Deliverables:

- Attendee list
- Meeting minutes within one week of each meeting

TASK A: REVIEW NON-MOTORIZED TRANSPORTATION LITERATURE

Alta will review and summarize policies and practices from other agencies around the country. Alta team member Michael Ronkin will bring his expertise from the Oregon Department of Transportation. Other Alta team members have helped state, regional, and Local agencies around the country develop practices and policies. We will develop a **Summary Table** showing how practices and policies vary in state agencies in the U.S. We will also develop a detailed, annotated **Bibliography and Subject Index** including all essential and/or useful documents for Californians working in the field of bicycle and pedestrian transportation. To a great extent, this bibliography has already been developed from other assignments in the past. This bibliography and index will an excellent web-based resource and will include links to some of the many resources in the country including the Bicycle and Pedestrian Clearinghouse.

Alta will produce a state-of-the-art **Overview** of the field, emphasizing California law, policies, and practices. The overview will be written in a manner that technical and non-technical people can easily understand and find topics of interest. For each reference cited, we will summarize the material covered and assess its place in the literature. Alta researchers are trained to develop intensive usable analysis of available materials, focusing on the quality, content, methodologies, documentation, relevance, and age of the material. This Bibliography will be continuously updated as the project proceeds and new materials are referenced.

Deliverable:

- Literature Review and Annotated Bibliography

TASK B: ASSESS USER NEEDS

In collaboration with Project Staff, Alta will determine the needs of Caltrans with respect to non-motorized transportation best practices technology transfer materials. Alta proposes to select up to 200 Caltrans staff to take a 20 minute **Skills Identification Test** to determine areas where training is needed the most. Alta employs this technique successfully on its own staff twice a year prior to our in-house training sessions. Alta already has several excellent tests to identify areas of training need and interest.

Alta will conduct interviews with staff in Local Programs, Planning, Design, Construction, Traffic Operations, and Maintenance at Headquarters and at selected rural, suburban, and urban District offices. Alta's offices throughout the State will facilitate this process.

Alta will also assess the needs of local and regional agencies that may look to Caltrans for leadership in the area of non-motorized transportation. We propose to use an **Agency Questionnaire** to survey all public works agencies in the State on their needs and interests in this area. The questionnaire may be distributed through an organization such as ITE, available on our website, and tabulated to gain a comprehensive understanding.

In addition, Alta will interview members of advisory and advocacy groups including (but not limited to):

- America Walks (and local chapters)
- California Bicycle Advisory Committee (CBAC)
- California Bicycle Coalition
- California Association of Bicycle Organizations
- Pedestrian Safety Task Force
- People with disabilities groups (such as the National Federation of the Blind and the National Organization on Disability)
- Rails-to-Trails Conservancy
- Local advocacy and advisory groups

A standardized interview survey will be used to collect this information so that the results can be clearly shown for both Caltrans, agency, and advocacy/advisory respondents.

Deliverable:

- User Needs Assessment

TASK C: PRODUCE A NON-MOTORIZED TRANSPORTATION REFERENCE GUIDE

Alta will develop and produce a non-motorized transportation reference guide for use by Caltrans personnel. Alta team members Reed Gibby and Michael Ronkin will provide their input respectively from the *Evaluation of Pedestrian Safety Policies and Practices on California State Highways* and the *Oregon Bicycle and Pedestrian Plan*. The reference guide will cover, at a minimum, the following topics:

1. Implementation of Deputy Directive 64 (including specifics on how that could be accomplished).

2. Laws and existing Caltrans policies and procedures regarding non-motorized transportation, including relevant portions of the Americans with Disabilities Act (and other sources such as *Designing Sidewalks and Trails for Access*, Parts I and II).

3. Design flexibility in existing Caltrans procedures (including the differences between mandatory and advisory standards, standards versus guidelines, use of AASHTO, ITE, and other outside guidelines, the concept of "best practices," and the role of design exceptions).

4. Proposed modifications to the Highway Design Manual, the Traffic Manual, and other Caltrans policy documents as appropriate. It is useful to note that HDM "Chapter 1000: Bikeway Planning and Design," was one of the first to be developed in the United States. Publications by AASHTO such as the *Guide for the Development of Bicycle Facilities*, which started out being based on Chapter 1000, have evolved over the years and now serve as the default bikeway design standard for many states.

   We will develop a Summary of Potential Policies, Practices, and Standards for review by Caltrans that classifies available materials according to the following groups:

   - Information Reports/Articles
   - Local Agency Standards and Guidelines
   - Research Studies
   - Non-documented Best Practices

   Alta's **Summary List of Potential New Policies and Practices** will include a ranking for each item, from policies/designs that have been studied and implemented successfully and deserve close consideration to areas that may have merit but require additional research. Alta will develop a scope of work for those items that require more research outlining how the effectiveness may be evaluated through additional research. These tasks may spawn research by Caltrans, ITS, ITE, NCHRP, or other groups.

5. Best practice designs based on FHWA, AASHTO, ITE and other authoritative resources on non-motorized (see above).

6. Summary of basic research issues and results regarding bicycle and pedestrian traffic, with emphasis on safety and mobility effects of striped crosswalks and bike lanes, and on-motorized transportation issues at intersections.

7. Innovative designs by California local agencies, with an in-depth chapter on bicycle facilities in the City of Davis.

8. Best practices for non-motorized traffic operations in work zones, based on Alta's 2002 City of San Diego report.

9. Best practices for estimating non-motorized traffic volumes as a performance measure for encouraging walking and bicycling, and as the basis for developing non-motorized traffic accident/collision rates.

10. Overview of bicycle and pedestrian collision and mobility statistics over time and compared to other states. Alta has developed several collision analysis tools that can be used to derive actual rates, for use in identifying areas with safety problems. These tools use consistent annual counts on users plus an analysis of the actual collision patterns themselves to understand the severity of the problem and the type of improvement that addresses the collision pattern. We will refine this effort for this project.

A sampling of Alta's experience with California communities includes:

Department of Water Resources: bicycle and pedestrian access along the California Aqueduct
Folsom: bicycle routes through the historic area of town
Lake Tahoe: bicycle and pedestrian connection through Emerald Bay
Los Angeles: first regional bicycle demand and air quality model
Marin County: bicycle freeway, share the road signs, bike tunnels, and bike bridges
Oakland: re-design of McArthur Boulevard to accommodate bicycles
Ojai: neighborhood and school pedestrian improvements
Palo Alto: first safe routes to school program in California
Palm Springs: use of the arroyos for bicycle and pedestrian pathways
San Diego: bicycle through construction zones
San Francisco: bicycle pavement arrow marking study
Visalia: first air quality benefit model for bicycles and pedestrians

11. Best practices for collecting, analyzing, and presenting non-motorized accident data, both on and off the State Highway System. Alta will recommend an effective methodology to accomplish this objective, based on our experience. This may include refinements to the current SWITRS accident reporting mechanisms, including new data fields, and use of new collision analysis software such as Intersection Magic or Crossroads that allow for greater analysis options and presentation options including highly graphical maps and incident plots.

12. Best practices solutions to problems typically encountered by Caltrans personnel in planning, designing, constructing, operating, and maintaining facilities for non-motorized transportation. This will be one of the questions asked in our Skills

Identification Test and Agency Questionnaire. We will also gather information from our past projects with or involving Caltrans. Some of the typical problems and challenges we've encountered include:

a. Local agencies not being familiar with how Caltrans reviews and approves a project within its jurisdiction
b. Uncertainty on how to deal with proposals and designs not specifically covered in the HDM or Traffic Manual
c. Providing bicycle and pedestrian access in constrained areas
d. Issues of safety and liability related to non-motorized facilities
e. State Highways in downtowns: addressing the trade-offs between traffic capacity and pedestrian-friendly design
f. Are all traffic-calming features, such as roundabouts, bicycle and pedestrian-friendly?
g. Responding to community claims of "unsafe" facilities.
h. Getting bicyclists and pedestrians through busy interchanges
i. Maintaining bike paths
j. Implications of innovative over and under crossing designs

The resulting document will be a comprehensive reference for transportation professionals working in the field of non-motorized transportation in California. It will serve as the textbook for the classroom presentation. The text will be thoroughly supported by professional quality illustrations, diagrams, charts, and graphs. It will contain design graphics as well as approved signage. It will be organized in a scholarly manner, providing references, footnotes, a table of contents, an index, and a complete annotated bibliography as developed through the first three steps of this work plan. The tables of contents, index, footnotes, and references will be linked to contents so as to automatically update as new material is added and page numbers and reference numbers change. The entire reference guide will be professionally proofread prior to submittal.

Deliverable:

- Reference Guide

TASK D: PRODUCE MATERIALS FOR A TWO-DAY CLASSROOM PRESENTATION

The Alta team includes Michelle DeRobertis, bicycle and pedestrian engineer leading the ITS Training Seminars; Mia Birk, an FHWA-certified Bicycle and Pedestrian Instructor who has given over 100 training sessions and conference presentations; John Williams, author of the Bicycle Facility Planning, Design, and Implementation Curriculum; Dan Burden, who has led more than 1,000 walkable communities training sessions; and Nazir Lalani, who has led numerous pedestrian crossing training seminars.

Together this group has identified a proposed two-day curriculum outline. We will finalize it with Caltrans staff and develop appropriate support materials such as PowerPoint presentations, video clips, an instructor lesson plan and text, student workbooks, exercises and quizzes with

answers, handouts, promotional copy, evaluation forms, and certificates for successful course completion. Steps will include:

- Development of course curriculum
- Development of support materials
- Walk-through with Caltrans project staff
- Dry-run of curriculum

Successful completion of this task is the main objective of the entire work plan, and will be carried out in close collaboration with Caltrans project staff to ensure that the necessary material is prepared for an effective presentation to the target audience. When class preparation is nearing completion we will present a walk-through of the material for the Caltrans project staff. Prior to finalization of the course material we will make a pilot presentation to approximately 30 Caltrans personnel. The site, equipment and other arrangements for this pilot presentation will be coordinated by Caltrans project staff; we will provide all instructors. The classroom presentation will then be finalized based on the feedback from the pilot presentation. The final presentation will be consistent with Caltrans Capital Project Skills Development standards including pre-assessment and post-assessment.

We have developed two alternative two-day curriculums for initial consideration. One is based on FHWA and Bikecentennial curriculum materials, and the other is based on the Institute of Transportation Studies curriculum.

ALTERNATIVE 1 DRAFT CURRICULUM

DAY ONE

Module 1: Policies, Standards, and Guidelines (9:00-10:20am)
To include: an overview of the non-motorized field; bicyclist and pedestrian characteristics; standards, guidelines, and design exceptions; traffic manuals and overview; Bicycle Transportation Account; and Deputy Directive 64.

Module 2: Planning and Design Strategies (10:30 -12noon)
To include: scoping of projects; identifying problems and opportunities; conducting audits; types of studies and reports; public and agency coordination; case studies; selecting a preferred alternative; and the role of CEQA and NEPA.

Module 3: Analytical Methods (1:00 - 2:20pm)
To include: reviewing site conditions; safety and collision data; traffic speed and volume data; bicycle/pedestrian volumes and patterns; cost and feasibility criteria; and types of facility improvements.

Module 4: Intersections, Crosswalks, Interchanges, Roundabouts, and Grade Separation (2:30 - 4:00pm)
To include: types of crossing installations; interchange design for pedestrians and bicycles; roundabouts and traffic calming devices; and over-crossings and under-crossings.

DAY TWO

Module 5: Class I Bike Paths (9:00 - 10:20am)
To include: Class I pathways in California; bike path user characteristics and design standards; bike path characteristics at typical locations; cost estimating; and bike path design review.

Module 6: Class II Bike Lanes and Class III Bike Routes (10:30 - 12noon)
To include: Class II and III bike lanes and routes in California; facility user characteristics and design standards; implementing bike lanes on roadways and arterials; signing and stenciling; cost estimating; and bike lane and route design review.

Module 7: Re-designing State Highways as Pedestrian-Friendly Streets (1 -2:15pm)
To include: state highway locations in California; pedestrian user characteristics; types of pedestrian improvements; analyzing traffic, safety, and parking needs and impacts; working with local agencies and the public; cost estimating; and highway re-design review.

Module 8: Work Zones (2:30 - 3:00pm)
To include: work zone regulations and requirements; potential problems and challenges; and recommended work zone practices.

Module 9: Estimating Demand/Performance Measures (3:00 - 3:40pm)
To include: estimating demand for bicycle and pedestrian facilities; latent demand analysis; level of service and compatibility concepts; and other performance measures.

ALTERNATIVE 2 DRAFT CURRICULUM

DAY ONE

Module 1: Transportation Planning and Bicycling
To include: Bicycle/Pedestrian Planning Issues in the Nineties: "A Multi-faceted Approach"; transportation and land use connections; and pedestrian- and bicycle-friendly land use patterns.

Module 2: Why Encourage Bicycle/Pedestrian Travel?
To include: environmental, social, and personal reasons.

Module 3: Bicycle/Pedestrian Accidents and Safety Issues
To include: sources for accident information; common accident crash typing; determining city's unique accident profile; and safe bicycling and walking behavior.

Module 4: Design Issues and Options
To include: the difference between bicycle issues and pedestrian issues; bike path, lane and route design standards; other design options including shoulders, wide curb lanes, bus-bike lanes, and bike boulevards; sidewalks, curb ramps, streetscape

Module 5: Accommodating Bicycles on All City Streets
To include: recommended roadway design guidelines; traffic calming and bicycles; and innovative approaches- case studies.

DAY TWO

Module 6: Facility Selection and Prioritization
To include: bicycle network selection, ranking systems

Module 7: Bicycle Parking
To include: bicycle parking needs: design and space requirements; location criteria; and quantity - recommended zoning ordinances.

Module 8: Transit Interface
To include: bicycles on transit; transit vehicle types; system examples; bicycle parking at transit facilities; bicycle/pedestrian access to transit facilities; and publicity and instructions on use.

Module 9: Legal Issues and Liability
To include: bikeway designations; use of non-standard signing, striping, pavement legends; negligence; and how existing street design and planning contribute to bicyclists'/pedestrians' disregard of traffic laws.

Module 10: Successful Pedestrian- and Bicycle-Friendly Cities
To include: education, enforcement, encouragement, and engineering; policies and legislation; and three key ingredients.

Deliverable:

- Electronic copy of Classroom Presentation

TASK E: PRODUCE A CD-ROM FOR COMPUTER-BASED INSTRUCTION

This project can be approached in several different ways, from a very simple, cost-conscious solution to a highly interactive, possibly cost prohibitive solution that is more effective from a student perspective. Under this contract, InfoPros will complete Option 2 materials described below.

OPTION 1: BASIC INSTRUCTIONAL TRAINING MATERIALS

This option transforms the training materials developed for Task D into a browser/web environment. After doing this, the training can be delivered on both a CD-ROM and via the instructional website.

The training modules will be developed using HTML and JavaScript (for quiz interactivity) and can be viewable in both the IE 4.0 and Netscape 4.0 and above Web browsers. No plugs-in to view the training modules will be necessary. This solution is text heavy but will contain some graphics as dictated by the student guide.

The training will consist of a template look and feel for the entire course that includes:

- Linked navigational graphics (buttons or navigation bar) that enable the student to get to any of the learning objectives and back to the welcome page from any point within the module.
- A welcome page that provides a menu from which students select one of several lessons (topics). This opening page contains text that introduces the course and explains how to use it.
- A multiple-choice quiz at the end of the training that enables students to review what they have learned and to measure whether they understand the content of the course.

ASSUMPTIONS:

- The reference and instructional materials developed in the previous tasks will be available in PDF format on the CD-ROM.
- For the purposes of this proposal, the page count is assumed to be 160.

The fee in the Cost Proposal is based on this basic option that meets the requirements of the RFP.

OPTION 2: EXPANDED OPTION

Using Flash technology viewed via a Flash plug-in and a Web browser, this method is the more complex solution although it provides more multimedia and interactive capabilities such as music, voiceovers, and animation. This alternative enables students to view the course content with Microsoft's Internet Explorer, version 5.0 and higher.

The course will contain:

- An opening scene that provides a menu from which students select one of six lessons (topics). Each lesson has an average of seven learning objectives. This opening scene introduces the subject and the training itself, and explains how to use it. This opening scene runs approximately 60 to 80 seconds.
- When a user clicks onto each lesson, a scene plays that describes the task in conceptual/overview terms. Each scene will use a combination of screen captures, graphics, text, and animation.
- A closing scene displaying the instructional Web site intranet address (approximately three to five seconds).
- Basic navigation will be provided on each screen throughout the tutorial that enables the student to move from lesson to lesson, back to the main window, and to exit the tutorial. User interaction includes selecting lessons to view, navigating from lesson to lesson, viewing the screen simulation of the tasks, participating in a simulation of each task, and exiting the tutorial.
- Optional features can include the following:
  - **Audio/Music:** Background music can be incorporated throughout the presentation, where appropriate. We recommend that music be incorporated in the opening scene that introduces the tutorial and upon exiting when the exit screen displays.

- **Audio/Voiceover:** Audio narration can be integrated into the tutorial, where appropriate. We recommend that narration be used at the opening scene to welcome the students and explain the tutorial, at the start of each lesson to set up the scenario, and during each Show Me scene to explain what is happening during each simulation.
- **Photographs/Graphics:** Stock photographs can be purchased from a service and custom graphics can be created and incorporated into the tutorial where appropriate.

ASSUMPTIONS:

- The reference and instructional materials developed in previous tasks will be available in PDF format on the CD-ROM.
- For the purposes of this proposal, the page count is assumed to be 160, consisting of six lessons with seven learning objectives per module.

Deliverable:

- CD-ROM (10 copies)

TASK F: DEVELOP AN INSTRUCTIONAL WEBSITE

From the user's perspective, one principle differentiates a good site from a bad site — **usability**. Well-designed sites place the user first. Forrester Research audited 20 major sites recently, finding that only 51 percent complied with simple Web usability principles such as "is the site organized by user goals?" Unfortunately, this is fairly common.

A well-designed and architected site balances its sponsor organization's needs and its audiences' needs. An outstanding website facilitates a **positive user experience** at every visit. A positive user experience encompasses what a person does, thinks, and feels when operating or working with the site. Therefore, the ideal website allows the user to accomplish quickly and easily the tasks they set out to perform without getting lost, confused, or frustrated. To facilitate positive user experiences, a site must have:

- An intuitive navigation scheme that answers three questions: "Where am I?," "Where have I been?," and "Where can I go?"
- Well-written and clear content that is formatted specifically for the online reader (online readers scan rather than read).
- Effective search and look-up functions.
- Consistent and instructive labels (words or phrases used throughout a site that identify content).
- An effective visual layout to support the site's architecture.

Drawing from our wealth of experience in human factors and usability, InfoPros will create a website that is intuitive and accessible for Caltrans employees. When developing a web solution,

our focus is on the message and the audience. The InfoPros' Web team understands how to architect information effectively using the appropriate navigational principles and cues, information hierarchy and labeling concepts, and orientation. Whether simple or complex, we give equal attention to all of the aspects that make up a great site — organization, content, usability, maintainability, and design.

All design aspects — form, function, metaphor, navigation, interface, interaction, visual, and information systems — build upon the groundwork of information architecture. With our understanding of these interlacing elements, the Caltrans training website will:

- Have a clear mission and vision
- Provide the right balance of function and content
- Define the appropriate organization and navigation for the site
- Accommodate change and growth

The website design process includes identifying the site's audience(s) and user goals, and defining user experiences by developing scenarios based on the various tasks the users set out to accomplish. From there, the content and functions needed are determined. Based on these findings, our team will recommend the technology solutions to best address Caltrans users' range of motivation and ability to focus on the intuitive architecture of the website.

Deliverable:

- Instructional, reference, and discussion website